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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,268	07/31/2001	Sean Mountcastle	CISCP696	5701
26541	7590	07/13/2006	EXAMINER	
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			ROBERTS, BRIAN S	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/920,268

Applicant(s)

MOUNTCASTLE, SEAN

Examiner

Brian Roberts

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,9-11,14,15,22,26-28,30 and 32-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4,5,30 and 32-35 is/are allowed.
- 6) ☒ Claim(s) 6,9-11,14,15,22 and 26-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

- Applicant's Amendment filed 04/27/2006 is acknowledged.
- Claims 1,6,11, and 22 have been amended.
- Claims 32-35 have been added.
- Claims 2-3, 7-8, 12-13, 16-21, 23-25, 29, and 31 have been cancelled.
- Claims 1, 4-6, 9-11, 14-15, 22, 26-28, 30 and 32-35 remain pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 6, 9-11, 14-15, 22, and 26-28 are rejected under 35 U.S.C (a) as being unpatentable over Hardwick et al. (US 550816) in view of Eilert et al. (US 6587938)

- In reference to claims 6, 11

Hardwick et al. teach a system and method that includes:

- Partitioning a network element that transmits data in a network (e.g. a switch) into a plurality of virtual network elements
- A management system allowing "for a percentage of total heap space to be provisioned as the maximum amount of memory which the VR and its subcomponents can obtain." (column 34 lines 19-21) (allocating a portion of

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- the resources of the network element to one of the plurality of virtual network elements);
- “When a VR attempts to allocate an amount of memory which would exceed the maximum allowed, it will be denied.” (column 34 lines 37-39) (permitting the one of the plurality of virtual network elements to utilize only the portion of the resource of the network element that has been allocated to the one of the plurality of virtual network elements)
 - A management system for managing:
 - Memory (column 34 lines 7-60) including receiving memory allocation request (column 35 lines 9-11)
 - Ports (column 7 lines 36-40).
 - The operations of a first virtual closed user group processor are divided between a first virtual closed user group processor are divided between a first and a second virtual switch. This spreads the processing load between two virtual switches. Since two first vi (column 9 lines 58-61; column 26 lines 36-51) (processor time)
 - Virtual closed user groups where a each virtual closed user group only has access to specific destination identifiers owned by that particular virtual closed user group so that a protocol data unit having a destination identifier which is not owned by the particular virtual closed user group will not be delivered (column 8 line 63 – column 9 line 10) Each virtual closed user group is assigned incoming traffic based on an access policy that is

separately specified in each virtual closed user group (column 29 lines 35-41; Figure 6 206) (bandwidth)

Hardwick et al. does not explicitly disclose managing processor time utilizing time slicing, reallocating processor time, and receiving queries from the virtual network elements for managing ports.

Eilert et al. teaches dynamically redistributing various physical resources across logical partitions of a computing environment under direction of one or more workload managers. The physical resources to be redistributed include CPU resources inherently utilizing time slicing when logical partitions share a single processor, logical processor resources, I/O resources, coprocessors, channel resources, network adapters and memory resources. (column 5 line 61- column 6 line 55) Eilert et al. further teaches a management system that allows a user to change the allocation of resources between logical partition groups (column 7 line 38 – column 8 line 5) and only utilize the portion of assigned resources.(column 7 lines 10-23) In Figure 8, Eilert et al. further teaches the manager receiving an I/O request (query) from the logical partitions that is en-queued in an I/O processor work queue that is used for managing ports. (column 14 lines 25-53)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system and method of Hardwick et al. to include manually managing the resources including processor time utilizing time slicing, reallocating the resources including processor time, restricting the partitions to only utilize the assigned resources, and receiving queries from the virtual network elements for managing ports as taught by Eilert et al. because it would allow the resources including processor time

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to be distributed to the different virtual network elements according to the initial workload and allow redistributing the resources including processor time according to changes in the workload.

- In reference to claims 9-10, 14-15, 27-28

Hardwick et al. teaches a system and method that covers substantially all limitations of the parent claim. Hardwick et al. teaches partitioning a network element that transmits data in a network (e.g. a switch) into a plurality of virtual network elements (abstract, column 23 lines 14-19) (network element that is used to transmits data is a switch).

- In reference to claims 22 and 26

Hardwick et al. teaches a method that includes:

- Partitioning a network element that transmits data in a network (e.g. a switch) into a plurality of virtual network elements
- A management system allowing “for a percentage of total heap space to be provisioned as the maximum amount of memory which the VR and its subcomponents can obtain.” (column 34 lines 19-21) (allocating a portion of the resources of the network element to one of the plurality of virtual network elements);
- “When a VR attempts to allocate an amount of memory which would exceed the maximum allowed, it will be denied.” (column 34 lines 37-39) (permitting

the one of the plurality of virtual network elements to utilize only the portion of the resource of the network element that has been allocated to the one of the plurality of virtual network elements)

- A management system for managing:
 - Memory (column 34 lines 7-60)
 - Ports (column 7 lines 36-40).
 - The operations of a first virtual closed user group processor are divided between a first virtual closed user group processor are divided between a first and a second virtual switch. This spreads the processing load between two virtual switches. (column 9 lines 58-61) (processor time)
 - Virtual closed user groups where a each virtual closed user group only has access to specific destination identifiers owned by that particular virtual closed user group so that a protocol data unit having a destination identifier which is not owned by the particular virtual closed user group will not be delivered (column 8 line 63 – column 9 line 10) Each virtual closed user group is assigned incoming traffic based on an access policy that is separately specified in each virtual closed user group (column 29 lines 35-41; Figure 6 206) (bandwidth)

Hardwick et al. does not explicitly teach receiving input specifying an application binary then executing the application binary.

Hardwick et al. teaches a method of allocating a portion of available memory, processor time, and data ports to each virtual switch via input through software (column

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49 lines 54-67, column 34 lines 7-60, column 24 lines 3-8, column 31 lines 41-43)
(receiving input specifying a application binary and executing the application binary).

It would have been obvious to one of ordinary skill in the art at the time of the invention to receive input specifying an application binary and then executing the application to allocate a portion of the resources to a plurality of virtual switches because an application binary is software that ensures runtime compatibility, since it defines the machine language, or runtime, format and allows for the partitioning of resources amongst the virtual switches.

Hardwick et al. does not explicitly disclose managing processor time and reallocating processor time or explicitly teach providing an indication of percentage of memory and processor time that is allocated or available to the plurality of virtual network elements.

Eilert et al. teaches dynamically redistributing various physical resources across logical partitions of a computing environment under direction of one or more workload managers. The physical resources to be redistributed include CPU resources, logical processor resources, I/O resources, coprocessors, channel resources, network adapters and memory resources. (column 5 line 61- column 6 line 55) Eilert et al. further teaches a management system that allows a user to change the allocation of resources between logical partition groups (column 7 line 38 – column 8 line 5) and only utilize the portion of assigned resources. (column 7 lines 10-23) Eilert et al. further teaches sharing a resource among a plurality of logical partitions and assigning a weight (percentage) to the logical partition group. The weight assigned to each logical partition

may be adjusted, but the sum of the weight of the partitions in the group remains constant. Therefore when the weight of resources assigned to one logical partition is raised, the weight of another logical partition is lowered. (column 10 lines 40-61)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system and method of Hardwick et al. to include managing the resources including processor time, reallocating the resources including processor time, restricting the partitions to only utilize the assigned resources, and providing an indication of percentage of resources including memory and processor time that is allocated or available to the plurality of virtual network elements as taught by Eilert et al. because it would allow a percentage of resources including processor time and memory to be distributed to the different virtual network elements according to the initial workload and allow redistributing a percentage of the resources including processor time and memory to the different virtual network elements according to changes in the workload.

Response to Arguments

3. Applicant's arguments with respect to claims 6, 11, and 22 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

4. Claims 1, 4-5, 30, and 32-35 are allowed.
 - In reference to claim 1

Independent claim 1 is allowed because the prior record fails to teach or fairly suggest a system or method where the virtual network element manger manages ports, wherein the virtual network element manager receives queries from a plurality of virtual network elements for ports available for the virtual network element sending the query.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

- Armstrong et al. (US 6691146) teaches logical partition manager and method.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Roberts whose telephone number is (571) 272-3095. The examiner can normally be reached on M-F 10:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BSR
07/05/2006



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